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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,544	10/23/2003	Wim Henderickx	Q77528	6418

23373 7590 10/02/2008

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ART UNIT	**PAPER NUMBER**
2619	

MAIL DATE	DELIVERY MODE
10/02/2008	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/690,544
Filing Date: October 23, 2003
Appellant(s): HENDERICKX ET AL.

Kelly G. Hyndman
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal briefs filed 7/2/2008 and 6/13/2008 appealing from the Office action mailed 11/28/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21 (2) of such treaty in the English language.

2. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by DiBiasio et al. (US Patent # 7225271 B1).

Consider claim: 1, DiBiasio et al. discloses a telecommunication router (Fig 4, 5) connected to a termination link and comprising a processor (Fig 5 @ 510, Queue Selector/Scheduler) adapted to handle packets of data received from said link (see Fig 4, 5), the telecommunication router comprising a plurality of queues adapted to store packets of data (figure: 5 @ 506) before said packets of data are transferred to said processor, and a packet classifier (fig 5@ 502) adapted to receive said packets of data from said termination link, to classify said received packets of data according to

predetermined types (Priority types, column: 7, lines: 6-20; and flow diagram: 6B), and to forward each of said classified packets of data towards one queue of said plurality of queues, said one queue being selected according to the type of each of said classified packets of data (real-time packets or non real-time packets), wherein each of said predetermined types (data type i.e. voice or data) is associated to a predetermined priority (Priority relates to data type), said processor is adapted to retrieve packets of data from the queues of said plurality according to predetermined priority rules (The top level in the hierarchy preferably uses a priority queuing algorithm with the PQ 504 being served at the highest priority while the. reserved queues 506 and the default queue 508 are served at the bottom or lowest priority, column:-7, lines: 27-30); and , each queue of said plurality of queues is controlled by a queue manager adapted to discard packets coming from said packet classifier when a predetermined threshold filling level of the queue is reached (The admission control entity 430, then determines whether sufficient available bandwidth also exists at the interface, if not sufficient then discard, column: 10, lines: 56-59; Admission Control block (fig: 6c, Step: 628) controls the incoming traffic, and under certain conditions of the reservation request, incoming call or traffic can not be proceed (blocked) (col: 11, lines: 40-50). In addition DiBiasio discloses that RSVP engine performs admission control, col: 11, lines: 5-6. And RSVP engine directs the classification engine to place packets in priority queue, col: 12, lines: 6-8. As shown in Fig: 5, Queue selector 510 manages the queues Q1-Q4).

Consider claim: 2 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein said processor is adapted to retrieve packets of data

from a queue associated to a relatively higher, predetermined priority prior to retrieving packets of data from another queue associated to a relatively lower predetermined priority. (Queue selector scheduler 510 is preferably a multi-level hierarchical scheduler. The top level in the hierarchy preferably uses a~ Priority queuing algorithm with the PQ 504 being served at the highest priority while the reserved queues 506 and the default queue 508 are served at the bottom or lowest priority, column: 7, lines: 26-31).

Consider claim: 3 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein said packet classifier is adapted to estimate said predetermined priority by analyzing the content of a packet. and to forward the analyzed packet to the queue corresponding to the estimated priority (In particular, each reserved queue 506a and the default queue 508 is assigned its own weight based on packets content, and packets are drained from the reserved and default queues 506, 508 based on the assigned weights, column: 7, lines: 36-40).

Consider claim: 5 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein each queue of said plurality of queues may have a different predetermined threshold filling level (As shown in figure: 6B, step 622, flow analyzer 432 determines whether corresponding traffic carries real time traffic or non real time traffic. The flow analyzer 432 then selects and assigns an appropriate queue and/or queue servicing algorithm or selection strategy to the real-time voice traffic flow and non real time traffic flow, column: 10, lines: 37-40).

Consider claim: 6 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein said processor (PROC) is adapted to retrieve

packets of data from said queues according to the load of said processor (The admission control entity 430 then determines whether the output interface 406b has sufficient available bandwidth to support the reservation in the same manner as described above. Assuming there is sufficient available bandwidth as well, the RSVP engine 424 then assigns and reserves the resources, as shown in fig: 6C, block: 6,30 column: 13, lines: 8-12).

Consider claim: 7 and as applied to claim: 1 above, DiBiasio et al: discloses the telecommunication router, wherein plurality of termination links (TL) are connected to said packet classifier (As shown in figure: 5, plurality of input packets 514 are connected to classification engine 502).

Consider claim: 8 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein a plurality of processors are adapted to retrieve packets of data from said queues. (As shown in figure: 4, pluralities of processors are used for Packet receiver, traffic scheduling, forwarding engine, RSVP engine).

Consider claim: 9 and as applied to claim: 1 above, DiBiasio et al. discloses the telecommunication router, wherein said packet classifier (CL) is adapted to forward to an output port of said telecommunication router packets ,that are not intended to said processor (The flow analyzer 432 determines whether the !respective values from the flow spec object 806 satisfy the above set of heuristics, as indicated at decision block 622. If they do, the flow analyzer 432 "concludes" that the corresponding traffic flow will be carrying real-time voice traffic, as indicated by block 624. The flow analyzer 432 then selects and assigns an appropriate queue and/or queue servicing algorithm or selection

strategy to the real-time voice traffic flow, as ;indicated at block 626, column: 10, lines: 35-42).

(10) Response to Argument

A. Independent Claim 1

- On page 9 of the Brief, Appellant contends that DiBiasio does not teach the claimed features of (1) a queue manager which is adapted to discard packets and (2) the claimed packets must be discarded when a predetermined threshold filling level of the queue is reached. Appellant states the RSVP engine in DiBiasio is not a queue manager because it does not manage the queues the Examiner associates with the queues of claim 1.

- The Examiner respectfully disagrees. Claim 1 recites "each queue of said plurality of queues is controlled by a queue manager adapted to discard packets coming from said packet classifier when a predetermined threshold filling level of the queue is reached." DiBiasio teaches packets ready for queuing initially arrive at the classification engine in the router (**Figure 5, element 502, column 7, lines 4-7**). The classification engine, based on information received from the RSVP engine (**Figure 5, element 424**), places the received packet into the priority queues (**Figure 5, elements 504, 506 or 508, column 7, lines 16-20**) for transmission. The RSVP engine comprises an admission control entity (**Figure 4, element 430**) which determines whether the output interface has the sufficient resources i.e. a priority queue

available and sufficient bandwidth available for the flow/session to which the packet belongs. There is a maximum bandwidth available at the output interface, specifically 256 Kb/s, and the admission control entity is configured so as to use only up to 75% of any given interface's capacity, thereby making 192 Kb/s of bandwidth available for use. The admission control entity determines if the flow's required bandwidth will exceed the bandwidth/resources available (**column 10, lines 47-67, column 11, lines 1-4**). If the flow will not exceed the resources, the RSVP engine assigns and reserves the resources by assigning the flow to a priority queue and deducts the used bandwidth from the available bandwidth value (**column 11, lines 10-21**). It is inherent that the available bandwidth in DiBiasio is reduced for every priority queue assigned to an admitted flow. It is also inherent that this reduction of available bandwidth and determination of if a flow's needed bandwidth can be accommodated by the available bandwidth can lead to a refusal of admission of packets. DiBiasio discloses that as a flow travels from router to router, the RSVP engine in the router is directing the classification engine to place packets in the appropriate priority queues (**column 11, lines 54-67, column 12, lines 1-8**). Thus, a classification engine will not direct packets into queues when the flow is not admitted. i.e. the flow is discarded.

- All of the above disclosures of DiBiasio clearly show that **the RSVP engine does, in fact, manage the queues**. More importantly, DiBiasio teaches (1) a queue manager which is adapted to discard packets (the RSVP engine with

admission control capabilities to control bandwidth used for flows and directing a classification engine to not direct packets into queues and (2) the claimed packets must be discarded when a predetermined threshold filling level of the queue is reached (the flow is not admitted i.e. discarded when the predetermined maximum bandwidth available has been reached and the flow cannot be accommodated).

- On pgs 10 and 11 of the Brief, Appellant contends the performance of "admission control" is distinct from discarding packets.
- Examiner respectfully disagrees. DiBiasio discloses packets arrive at the classification engine initially but the RSVP engine is the device determining whether subsequent queuing of the packets at the output of the router is allowed on the basis of available resources. Furthermore, the routers are intermediate devices in the network and thus, the packets are not waiting at the originating voice agent as Appellant argues on page 11 of the Brief. The packets can have arrived at the intermediate router through its travel through the network and the RSVP engine would be making the admission decision of these packets based on a predetermined bandwidth value/threshold. DiBiasio discloses at each hop, the corresponding intermediate device establishes a session for the receiver and sets aside sufficient resources to provide the requested bandwidth for the desired traffic flow. If the resources are not available, the reservation is explicitly refused so that the receiver

knows it cannot depend on resources being devoted to its traffic (**column 3, lines 56-62**).

- On page 11 of the Brief, Appellant contends nothing in DiBiasio appears to teach discarding packets when a predetermined threshold filling level of the queue is reached. Appellant agrees DiBiasio does suggest the possibility of a priority queue becoming full, in which cases may be dropped but Appellant contends the packet dropping is of an unintentional and undesired nature.
- Examiner respectfully disagrees. A dropping of a packet is usually, if not always, an unintentional and undesired action. A packet is dropped due to insufficient resources and the action is neither necessarily aimed at certain users nor requested by a user and thus is not intentional nor really ever desired. DiBiasio does state the likelihood of the priority queue becoming full and packets being dropped is significantly reduced since the intermediate device limits the flows that can be assigned to the priority queue(**column 12, lines 9-20**). The limiting of flows by the intermediate device refers to the admission control operation performed by the RSVP engine which denies admission i.e. discards the packets that have arrived at the classification engine of the intermediate device if there are not sufficient resources. Examiner would like to point "significantly reduced" is not equivalent to completely preventing or averting the dropping of packets which makes sense since available bandwidth is a variable factor in a network.

- Therefore, the rejections are proper and do not rise to *any* level of unreasonable interpretation as Appellant states. Furthermore, Examiner has provided straightforward evidence that DiBiasio anticipates the claimed subject matter. It is believed by the Examiner that this evidence, proven to exist in the cited reference, satisfies any burden bestowed upon her by the Appellant. The disclosure of DiBiasio and the Examiner's response herewith far surpass any logic test that would be used to validate number 3 equaling the number 4, contrary to Appellant's glib assertion on page 11 of the Brief . The above arguments clearly demonstrate that DiBiasio does teach a queue manager as well as teaching a queue manager that discards packets when a predetermined threshold filling level is reached.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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10/01/08

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